full strength of medicine, the other health professions and indeed the whole health care enterprise fully to bear. It is true that physicians represent a special interest group on the political scene, but what is not so generally recognized is that their special interest (and that of the larger health care enterprise) is a very broad one. It reaches out to that huge silent majority which seems somehow to have become disenfranchised and replaced by sometimes powerful and sometimes just vociferous special interest groups promoting special causes. Medicine, with its genuine concern with human health and well-being, can touch just about everyone everywhere. And this could be important for the future of this profession.

The medical profession is now being seriously challenged for its leadership in health care, and let there be no doubt about this. The future role of physicians in medical practice will be quite different if some advocates of formidable special interest groups in both the public and private sectors have their way. It is not too soon for the medical profession to get even further into the political game as it is now being played. It is time to begin to mobilize its colleagues in the health professions and in the health care enterprise and to find genuine solutions to the health care problems that concern the public. Particularly, it is time for the profession to begin to identify itself clearly with the special interests of that huge, silent majority, the American public, that is concerned with personal health, well-being and quality of life. The role should be a familiar one for physicians. Quite simply it is the familiar doctor-patient relationship, but in a new and much broader dimension. One might add that, as is so often the case in medical practice, the time is short and the occasion instant.

—MSMW

Iatrodemics and Iatrodemiology

CLEARLY MEDICAL SCIENCE has made major advances possible in patient care during the past 50 years, and the lives of millions of patients have been improved. But there is another side to this coin. In retrospect, some of what was accepted as good scientific medical practice, often over a period of many years, subsequently—with further data and further progress in research—turns out not to have been as beneficial as was thought or even to have been harmful. Sometimes this occurs on a substantial scale, even reaching epidemic proportions. This phenomenon may be described by the term *iatrodemic,* which means iatrogenic disabilities on an epidemic scale.

For example, between 1961 and 1970 many thousands of patients were diagnosed as suffering from pulmonary embolism based on what was thought to be a good clinical history and the use of an advance in technology, the perfusion lung scan. It has become clear that many of the cold spots found on perfusion scanning were nonspecific and did not represent pulmonary embolism. A conservative estimate is that 80 percent of those patients diagnosed as having pulmonary embolism between 1961 and 1970 did not have it.[1-3] This very large number of patients were mistreated in terms of what we know now. Therefore, based on what we do know today, one can say that an epidemic of iatrogenic disease and disability, an iatrodemic, occurred as a result of treating a very large number of patients, often very aggressively, for pulmonary embolism that most did not have. This iatrodemic arose primarily because there never had been and still has not been an adequate randomized prospective trial validating the accuracy of ventilation and perfusion scanning in pulmonary embolism.

For another example, for many years (probably since 1907[4]) radical mastectomy was the treatment of choice for carcinoma of the breast. There is no way to estimate accurately the number of patients treated in this way, but the figure may run into the millions. In 1955 a Scottish physician, McWhirter, published a report of a small series of patients that suggested that simple excision of tumor followed by radiation therapy gave results that were as good as those of radical mastectomy.[5] However, these results and similar results by others were either ignored or discounted. But during the past five years substantial data have accumulated to show that in cases of localized breast tumor, the use of lumpectomy plus radiation produces survival rates not significantly different from those of radical mastectomy.[6] Although the issue has not been entirely settled, many experts now accept the latter approach as at least an acceptable alternative; thousands of women are being spared a physically and emotionally damaging procedure because

radical mastectomy is no longer considered the only acceptable form of therapy. This iatrodemic arose because of an a priori analysis based on an interpretation of the biology of cancer that is no longer considered tenable.[7] No adequate clinical trials were done and, in the final analysis, the practice was based on faith or belief.

These two examples have common characteristics. Each was based on an a priori analysis that seemed sufficiently convincing so that the approach gained general acceptance. There was no real data base for either of the practices. In retrospect, each iatrodemic might have been avoided by relatively small early studies testing the a priori hypothesis.

It should be made clear that this communication does not refer to *iatroendemics*—illnesses and disabilities caused by the inappropriate use of treatment or from an accepted risk of an appropriate use. These iatrogenic happenings will always be endemic and are an inevitable part of patient care, and it is no secret that physicians should and often use these experiences with these untoward events to practice better medicine.

The science of *iatrodemiology* can be an important field in clinical medicine, and most physicians, whether in practice or research, could function as *iatrodemiologists*. The causes of iatrodemics are multiple and complex. Not only are real advances rapidly adopted in practice, but our almost instantaneous system of medical communication also disseminates untested approaches to patient care that may later prove to be incorrect or dangerous. Adequate clinical trials can be extraordinarily difficult to carry out, and it is not easy to detect small benefits or small injuries in small studies based on small numbers. And science itself has its own limitations and difficulties.[8] Then, too, there is an important bandwagon effect when publication of an inadequate study in a reputable journal may lead to general adoption of the published approach. It may be that only one or two reviewers stand between the advocate of a particular practice and those patients who may subsequently receive a new therapy.

It is not traditional for those who introduce errors to take the responsibility for correcting them. The reversal of an error often is an exceedingly slow process. Introduction of a practice (which may later prove to be bad) rides a jet; its elimination from accepted practice is more apt to crawl. Whether we as a profession have taken adequate steps for correcting our errors is an open question. There is no organized forum for dissemination of new information that explicitly refutes previous error. There is no *American Journal of Errors, Retractions and Amendments.* Given the complex causes of iatrodemics, there is no simple answer to preventing them. One step would be to develop organized approaches for critical analysis of current practices and provide an organized forum so that we can systematically learn from our errors and correct them. Should journals like this one provide such a forum? How many iatrodemics can we eliminate and how many can we prevent?

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If Preventable Why Not Prevented?

TWO TIMELY REPORTS on osteoporosis and estrogen therapy appear elsewhere in this issue. Specht points out the relationship between hip fractures and postmenopausal bone loss, and their prevention by administration of low doses of estrogens. Rosenberg and co-workers, in a careful case-control study, confirm previous reports that postmenopausal estrogen replacement, unlike oral contraceptives, does not increase the risk of stroke. Other studies, still in press but soon to be available, further support the findings of these reports and add the information that hip fractures occur far less frequently in estrogen-treated women (11 percent as frequent in castrates receiving long-term estrogen therapy as in untreated comparable controls, according to Paganini-Hill[1])